



Memorandum

To: *Stephanie Vaughn (USEPA)
Elizabeth Buckrucker (USACE)*

From: *Scott Kirchner (CDM Smith)
George Molnar (CDM Smith)*

Date: *June 24, 2013*

Re: *Status Report (June 2013)
CPG Oversight of Chemical Water Column Monitoring
Lower Passaic River Restoration Project*

On behalf of the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE), Kansas City District, CDM Federal Programs Corporation (CDM Smith) is providing oversight of the Cooperating Parties Group (CPG) remedial investigation/feasibility study (RI/FS) field activities associated with chemical water column monitoring (CWCM), and the collection of chemical data in the Lower Passaic River (LPR).

CDM Smith oversight activities were conducted June 7, 8, 9, and 20, 2013. Oversight included observations of the collection of samples in the LPR and tributaries in support of a second high flow event of the CWCM program. In addition, CDM Smith also collected split samples at select locations. All activities were conducted in accordance with the CPG *Quality Assurance Project Plan/Field Sampling Plan Addendum (QAPP/FSP)*, *Remedial Investigation Water Column Monitoring/Small Volume Chemical Data Collection*, Revision 2, August 2011.

Photographs of field activities are provided in Attachment 1. Copies of field logbook notes can be found in Attachment 2. Copies of the chain of custody records are provided in Attachment 3.

General Summary

Oversight consisted of observations of in-river and field facility activities conducted by CPG contractors AECOM. Ocean Surveys Incorporated (OSI) provided vessel and sampling support.

All sample locations were verified by oversight staff using the map provided in CPG's QAPP/FSP. Review of the United States Geological Survey (USGS) gauging station at Dundee Dam indicated the peak flows exceeded 4000 cubic feet per second (cfs).

In summary, the following locations were sampled during this event:

- Dundee Dam
- RM 0
- RM 1.4
- RM 4.2
- RM 6.7

- RM 10.2
- Saddle River
- Second River
- Third River

Upon arrival at each RM location, CPG lowered a YSI water quality instrument to the bottom of the riverbed and then raised it while simultaneously collecting water quality data in real time. Attached to the instrument was sampling tubing attached to a remote pump located on the sampling vessel. After a full “cast”, the instrument was lowered to approximately 3 feet above river bottom, and the pump was activated allowing the tubing to purge for a few minutes followed by sample collection. Once all samples were collected at the lower depth, the instrument was raised to approximately 3 feet below river surface, the tubing was allowed to purge and another sample set was collected. After the top sample was collected, a final “cast” was conducted to record real-time water quality measurements.

A similar approach was used above Dundee Dam and at the tributaries; however, samples were only collected from a single depth, approximately midway in the water column. The YSI and sampling tubing were deployed either off a bridge such as at Saddle River, or from land such as at the Second and Third Rivers. Sampling above Dundee Dam was conducted from a boat.

For this sampling event, CDM Smith accepted split samples from the following locations:

- Second River (first rising limb)
- RM 4.2 (second rising limb)
- RM 6.7 (peak)
- RM 10.2 (second rising limb, peak, falling limb)

Throughout each day, samples were collected and shuttled back to the CPG facility for processing and packing. Oversight of activities at the CPG field facility indicated a relatively organized system of sample logging, labeling, chain of custody generation, and packing given the large volume of samples and bottleware involved. All sampling packing activities were conducted in accordance with AECOM’s QAPP.

Summary of Daily Activities

The following is a summary of daily activities observed during CDM Smith’s oversight of CWCM activities:

June 7, 2013

Crews collected first and second rising limb samples on the tributaries, and first rising limb samples on the river. CDM Smith oversight staff observed the collection of samples from the Second River during the first rising limb event and also collected a split sample at this location.

June 8, 2013

Crews collected second rising limb samples on the river, and peak and falling limb samples on the tributaries. Peak tributary sampling occurred at approximately midnight Friday/early morning Saturday. CDM Smith oversight staff observed the collection of samples at RM 4.2, and collected a split sample at this location. A split samples was also collected at RM 10.2; however, due limitations

on the number of personnel allowed on the vessel, oversight staff we unable to accompany field crews.

June 9, 2013

Crews collected river samples representing the peak of the hydrograph. CDM Smith oversight observed the collection of samples at RM 6.7, and also collected a split sample. A split sample was also collected at RM 10.2.

June 20, 2013

Following the completion of the collection of samples representing the peak of the hydrograph, two significant rainfall events occurred which postponed the planned date of sampling the falling limb due to an increase in flows. Crews re-mobilized to collect the falling limb samples once conditions were favorable over a week later. CDM Smith oversight staff observed the collection of samples from RM 10.2, and also collected a split sample.

QAPP Compliance

All field activities were conducted in accordance with QAPP procedures.

Table 1
Cooperating Parties Group and CDM-Smith Split Sample Identification
June 2013 High Flow Chemical Water Column Monitoring Oversight
Lower Passaic River Restoration Project
Lower Passaic River, New Jersey

Location	CPG Sample ID	CDM Split Sample ID	QC Samples	Tide Event	Collection Date	Analysis
Second River	13A-CE11-T2R1-AS	13A-CE11-T2R1-AS-C	MS/MSD **	first rising limb	6/7/2013	PCB congeners, PCDD/PCDF, cadmium - copper - lead (total and dissolved), mercury (total and dissolved), TOC, DOC, POC, SSC, TDS
RM 10.2	13A-CE12-T102-BS	13A-CE12-T102-BS-C		second rising limb	6/8/2013	
RM 10.2	13A-CE12-T102-BS	13A-CE12-T102-BS-CX	Duplicate *	second rising limb	6/8/2013	
RM 4.2	13A-CE12-T042-BS	13A-CE12-T042-BS-C		second rising limb	6/8/2013	
RM 10.2	13A-CE20-T102-BS	13A-CE20-T102-BS-C		peak	6/9/2013	
RM 6.7	13A-CE20-T067-AS	13A-CE20-T067-AS-C		peak	6/9/2013	
RM 10.2	13A-CE21-T102-BS	13A-CE21-T102-BS-C		falling limb	6/20/2013	

CPG - Cooperating Parties Group

DOC - dissolved organic carbon

ID - identification

MS/MSD - matrix spike/matrix spike duplicate

PCB - polychlorinated biphenyl

PCDD/PCDF - polychlorinated dibenzodioxins/polychlorinated dibenzofurans

POC - particulate organic carbon

QC - quality control

SSC- suspended solids concentration

TDS - total dissolved solids

TOC - total organic carbon

* - field duplicate sample of CDM split sample 13A-CE12-T102-BS-C

** - MS/MSD only for total and dissolved cadmium - copper - lead - mercury, TOC, and DOC

Attachment 1
Photographs of Field Activities



Photo 1 – Sample collection at RM 6.7



Photo 2 – Deployment of water quality meter and tubing at the Second River



Photo 3 – Water rushing through the Second River



Photo 4 – Sample collection at Second River



Photo 5 – Clean hand / dirty hand sample collection



Photo 6 – Tubing attached to water quality meter before deployment

Attachment 2

Copies of Oversight Field Logbook Notes

Location LPR Date 6-7-13¹⁰⁹

Project / Client USACE

gation 2nd High Flow Event

PDE: Modified Level D

Weather: 60° Fahrenheit, Rain

Personnel: JR (CDM Smith)

Objective: Split Sampling and Oversight

0530 JR arrives at Second River on the corner of

Mill and Washington Streets in Belleville, NJ. CDM-Smith was informed of a Gam tributary start time.

0555 Ryan McCarthy informs JR that Kris Van Nerson of AECOM is heading over here to sample.

0620 KVV arrives

0635 begin equipment setup

0709 IBA-CELL-T2R1-AS-C

Sample time

0750 Sampling Complete

0820 Complete putting away equipment.

0840 Arrive at CP6 facility.

0900 Bring in Supplies and bottle ware

6-7-13

110

Location

LPR

Date

6-7-13

Project / Client

USACE

2nd High Flow event

- 1 0030 Discuss logistics with
Ryan McCarthy.
1 1015 depart site

J.R.

6-7-13

Location

LPR

Date

6-20-13¹¹

Project / Client

USACE

2nd High Flow event

- PPE! Modified Level D
Weather: 70°F
Personnel: JR (CDM-Smith)
Objective: Collection of falling
limb sample at RM 10.2
1020 JR arrives at River
Mile 6.7 behind Burger
King fence line and awaits
arrival of vessel.
1025 JR calls Helen of Acon
to inform her of arrival.
1050 Board boat
1115 Arrive at RM 10.2
1150 OSI tries to connect YSI. It
is not connecting
1215 YSI is now working.
* 1230 13A-CE21-T102-BS-C
Sample time - COMS split
1303 13A-CE21-T102-AS-C
Sample time
1340 JR departs boat.

J.R.

6-20-13

Location Lower Passaic River Date 6-8-13
 Project / Client CHCM High Flow Event / USACE
USACE
USACE
6-8
 P. Connelly

08:45 - P. Connelly onsite at CPG Facility.
 Meets with Kristen D. of AECOM. She
 shows PC where J. Rakowski (COM) stored
 our split sample bottleware sets.

09:30 - PC goes to Burger King/Applebees parking
 lot where I am scheduled to be picked
 up by OSI boat to oversee and collect
 split sample at RM 4.2. Call Dave Smith
 of AECOM. He is head of sampling crew
 for RM 1.4 and 4.2. He says they
 are heading to RM 1.4 from Liberty
 Landing in Newark, NJ to sample at RM 1.4.

After they sample at RM 1.4, they will
 pick up PC at Burger King Bulkhead
 and go to RM 4.2

PPE - modified level D

Weather - Sunny, 70's°F. Heavy rain
 fell yesterday

12:20 - PC gets picked up by AECOM/OSI.
 Personnel on board: Dave Smith, Rachel
 Maddalena, Joe DePalma (AECOM) and
 Jay DeLorenzo (OSI)

12:45 - Arrive at RM 4.2 and set anchors

13:05 - Water depth = 19.0 feet

Pick up 6-8-13

Location LPR Date 6-8-13
 Project / Client CHCM High Flow Event / USACE
 P. Connelly

Probe depth = 16.3 feet

Salinity = 16.3 ppt

pH = 7.21 SU

Turbidity = 66.8 NTU

Split sample ID = 13A-CE12-T042-BS-C

X = 588216.51 ft Y = 692382.6 ft

NJ State Plane, NAD 83

13:52 - Crew has raised pump intake
 to 3 feet below surface. Begin
 purging for sample 13B-CE12-T042.

No split is collected here

14:05 - Finished collecting 13A-CE12-T042

AS

14:45 - OSI drops PC off at BK parking
 lot. PC returning to CPG facility.

15:30 - PC back at CPG facility.

Helen Jones of Anchor QEA collected
 split sample and duplicate split
 sample at location 13A-CE12-T102-BS
 for COM Smith. Sample ID is

13A-CE12-T102-BS-C

Sample time was 11:15 AM

16:00 - PC has placed all split sample
 coolers in AECOM walk in fridge

Pick up 6-8-13

Location LPR Date 6-8-13
 Project / Client CWCM High Flow Event / USACE
P. Connelly

16:15 - P. Connelly (COM Smith) on site at CPG Facility. Pick up bottles to collect a split sample at RM 10 and RM 6.7. Meet with Helen Jones, AECOM to discuss the plan for the day.

6-8-13

Location LPR Date 6-9-13
 Project / Client CWCM High Flow Event / USACE
P. Connelly

11:30 - P. Connelly (COM Smith) on site at CPG Facility. Pick up bottles to collect a split sample at RM 10 and RM 6.7. Meet with Helen Jones, AECOM to discuss the plan for the day.

PPE - modified level 1

Weather - sunny, 70/50's

12:00 - H. Jones gives H+S brief.

12:10 - Depart CPG Facility Dock aboard OSI boat to head to RM 10.2

Personnel - P. Connelly (COM), H. Jones (AECOM), John Bean, Kevin

12:47 - East 592149 ft

North 579744 ft

NS State Plane, NAD 83

None coordinates are in West 100

Location LPR Date 6-9-13
 Project / Client CWCM High Flow Event / USACE
P. Connelly

to 3 feet below water surface. Also
 put on new tubing. PC

13:44 - collect ^{PC} AECOM collects 13A-CE20-T402-AS

No split at this location PC

13:59 - AECOM finishes sample. Station
 RM 10.2 complete.

14:34 - We are set up and begin purging
 at RM 6.7. Full water quality profile collected.

$X = 586129$ ft $Y = 702829$ ft

NJ State Plane, NAD83

14:37 - AECOM collects sample 13A-CE20-T067-BS

This is not a split sample PC

14:48 - Finished collecting sample

DTB = 14.7 ft Pump = 11.7 ft

14:55 - Begin purging for A interval at RM 6.7.

Pump intake is at 3 feet below surface

and tubing is new PC

15:58 - collect ~~sample~~ split sample

15:18 - 13A-CE20-T067-AS-C

15:18 - End collecting sample

15:52 - Arrive back at CPD Dock

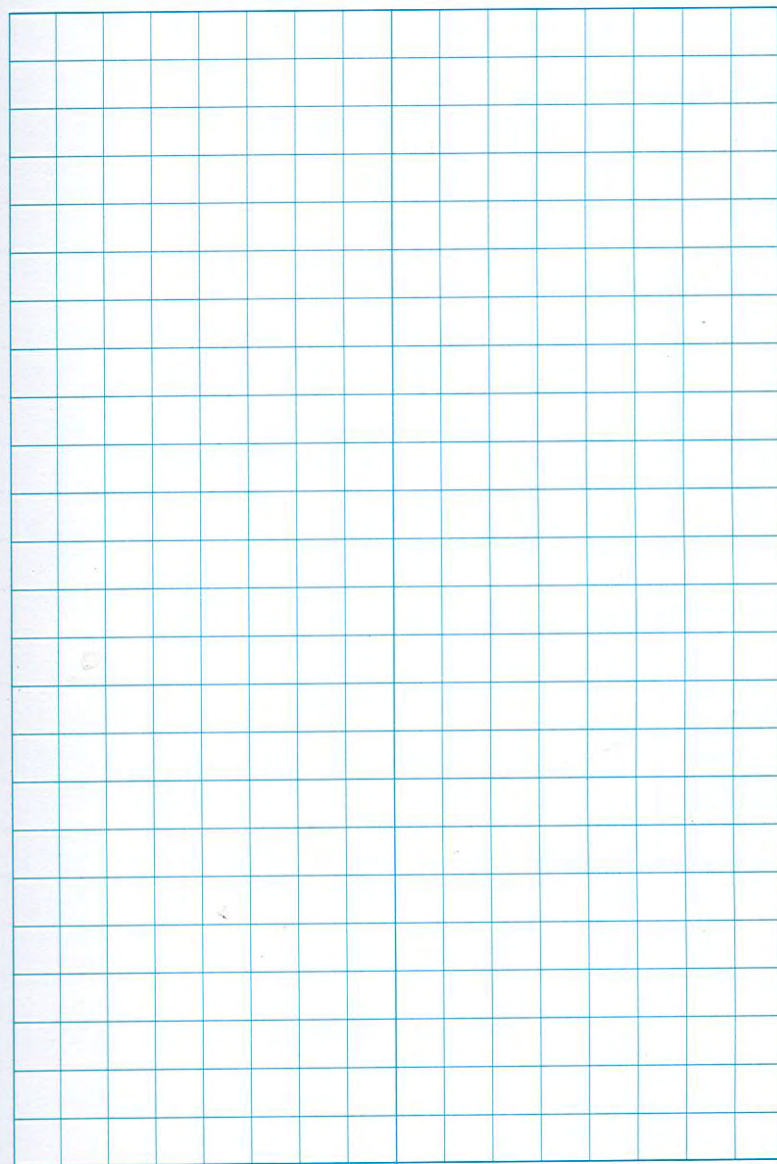
16:10 - PC places 2 samples collected today
 in the walk-in fridge PC

16:20 - PC off site

PC 6-9-13

Location _____ Date _____

Project / Client _____



Attachment 3
Copies of Signed Chain of Custodies

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	J.R.	6-10-13									

[illegible]

DateShipped: 6/10/2013
CarrierName: Hand Delivery
AirbillNo:

CHAIN OF CUSTODY RECORD

Passaic - F2L
Case Complete: False
Cooler #:

No: 2-120611-114002-0004

Lab: EPA-DESA laboratory
Lab Address: 2890 Woodbridge Ave
Lab Phone: 7323216707

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	13A-CE11-T2R1-AS-C	Second River	Total Organic Carbon	Surface Water	6/7/2013	07:09	2	250 mL poly	4 C	Y
	13A-CE11-T2R1-AS-C	Second River	Particulate/Dissolved organic carbon	Surface Water	6/7/2013	07:09	2	250 mL poly	4 C	Y
	13A-CE11-T2R1-AS-C	Second River	Suspended solids/Total dissolved solids	Surface Water	6/7/2013	07:09	1	1 L poly	4 C	N
	13A-CE12-T042-BS-C	RM 4.2	Total Organic Carbon	Surface Water	6/8/2013	13:13	1	250 mL poly	4 C	N
	13A-CE12-T042-BS-C	RM 4.2	Particulate/Dissolved organic carbon	Surface Water	6/8/2013	13:13	1	250 mL poly	4 C	N
	13A-CE12-T042-BS-C	RM 4.2	Suspended solids/Total dissolved solids	Surface Water	6/8/2013	13:13	1	1 L poly	4 C	N
	13A-CE12-T102-BS-C	RM 10.2	Total Organic Carbon	Surface Water	6/8/2013	11:15	1	250 mL poly	4 C	N
	13A-CE12-T102-BS-C	RM 10.2	Particulate/Dissolved organic carbon	Surface Water	6/8/2013	11:15	1	250 mL poly	4 C	N
	13A-CE12-T102-BS-C	RM 10.2	Suspended solids/Total dissolved solids	Surface Water	6/8/2013	11:15	1	1 L poly	4 C	N
	13A-CE12-T102-BS-CX	RM 10.2	Total Organic Carbon	Surface Water	6/8/2013	11:15	1	250 mL poly	4 C	N
	13A-CE12-T102-BS-CX	RM 10.2	Particulate/Dissolved organic carbon	Surface Water	6/8/2013	11:15	1	250 mL poly	4 C	N

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time
	J.R.	6-10-13			

DateShipped: 6/10/2013
CarrierName: Hand Delivery
AirbillNo:

CHAIN OF CUSTODY RECORD

Passaic - F2L
Case Complete: False
Cooler #:

No: 2-120611-114002-0004

Lab: EPA-DESA laboratory
Lab Address: 2890 Woodbridge Ave
Lab Phone: 7323216707

[illegible]

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time
	JR	6-10-13			

Cooler #:

Lab Phone: 2197698378

Items/Reason	Relinquished by	Date	Received by	Date	Time
	J.R.	6-10-13			

Cooler #:

Lab Phone: 2197698378

Items/Reason	Relinquished by	Date	Received by	Date	Time
	J.R.	6-10-13			

Cooler #:

Lab Phone: 2197698378

[illegible]

AirbillNo:

CHAIN OF CUSTODY RECORD

Passaic - F2L

Case Complete: False

Cooler #:

No: 2-060913-125633-0010

Lab: Shealy Environmental

Lab Address: 106 Vantage Point Drive

Lab Phone: 803-791-9700

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	13A-CE11-T2R1-AS-C	Second River	Dissolved cadmium, copper, lead	Surface Water	6/7/2013	07:09	1	1 L poly	HNO3 pH<2	Y
	13A-CE11-T2R1-AS-C	Second River	Total cadmium, copper, lead	Surface Water	6/7/2013	07:09	1	1 L poly	HNO3 pH<2	Y
	13A-CE12-T042-BS-C	RM 4.2	Dissolved cadmium, copper, lead	Surface Water	6/8/2013	13:13	1	1 L poly	HNO3 pH<2	N
	13A-CE12-T042-BS-C	RM 4.2	Total cadmium, copper, lead	Surface Water	6/8/2013	13:13	1	1 L poly	HNO3 pH<2	N
	13A-CE12-T102-BS-C	RM 10.2	Dissolved cadmium, copper, lead	Surface Water	6/8/2013	11:15	1	1 L poly	HNO3 pH<2	N
	13A-CE12-T102-BS-C	RM 10.2	Total cadmium, copper, lead	Surface Water	6/8/2013	11:15	1	1 L poly	HNO3 pH<2	N
	13A-CE12-T102-BS-CX	RM 10.2	Dissolved cadmium, copper, lead	Surface Water	6/8/2013	11:15	1	1 L poly	HNO3 pH<2	N
	13A-CE12-T102-BS-CX	RM 10.2	Total cadmium, copper, lead	Surface Water	6/8/2013	11:15	1	1 L poly	HNO3 pH<2	N
	13A-CE20-T067-AS-C	RM 6.7	Dissolved cadmium, copper, lead	Surface Water	6/9/2013	14:58	1	1 L poly	HNO3 pH<2	N
	13A-CE20-T067-AS-C	RM 6.7	Total cadmium, copper, lead	Surface Water	6/9/2013	14:58	1	1 L poly	HNO3 pH<2	N
	13A-CE20-T102-BS-C	RM 10.2	Dissolved cadmium, copper, lead	Surface Water	6/9/2013	13:12	1	1 L poly	HNO3 pH<2	N

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

[illegible]

Items/Reason	Relinquished by	Date	Received by	Date	Time
	J.R.	6-6-13			

Cooler #:

Lab Phone: 8883730881

[illegible]

DateShipped: 6/20/2013
CarrierName: Hand Delivery
AirbillNo:

CHAIN OF CUSTODY RECORD

Passaic - F2L
Case Complete: True
Cooler #:

No: 2-061913-172608-0019

Lab: EPA-DESA laboratory
Lab Address: 2890 Woodbridge Ave
Lab Phone: 7323216707

[illegible]

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

[illegible]

[illegible]

Cooler #:

Lab Phone: 803-791-9700

Items/Reason	Relinquished by	Date	Received by	Date	Time
	J.R.	6-20-13			